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ABSTRACT

The relationship between a child's assumption of responsibility for intellectual-academic successes and failures and various performance scores was examined in the present investigation. An expanded version of the Crandall, Katkovsky, and Crandall (1967) Intellectual Achievement Responsibility (IAR) Questionnaire was administered to a total of 138 children in the fourth, sixth, and eighth grades. Three levels of internality (I) were established separately for the boys and girls by partitioning the Total I scores derived from the IAR into Lo, Mid, and Hi groups. The girls were not found to differ significantly on any performance measure as a function of Total I level. However, the boys who assumed relatively little responsibility for their outcomes (Lo Total I) demonstrated a different pattern of assumption of responsibility for positive and negative outcomes, significantly poorer scores on the intelligence and achievement indices, and a more defensive pattern of Self/Other attributions than boys who assumed greater responsibility for their outcomes. (Author)

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The Relationship Between Intellectual-Achievement Responsibility Attributions and Performance

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Presented at the Meeting of the Midwestern Psychological Association, Chicago, May 1977.

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The Relationship Between Intellectual-Achievement Responsibility Attributions and Performance

The central concept of the theory of locus of control is that individuals differ in the extent to which they attribute reinforcement to their own actions or to outside forces. Individuals characterized as internal (I) believe that their behavior influences what happens to them and that they are in control of their fate. On the other hand, individuals characterized as external (E) believe that their behavior cannot markedly influence what will happen to them and that they are relatively powerless to control their own fate.

Recent reviews (Lefcourt, 1976; Phares, 1976) indicate that one area of research which has received considerable attention concerns the relationship between a child's locus of control and various measures of intellectual-academic achievement. Several studies have demonstrated that children who feel that performance outcomes are a consequence of their own behavior demonstrate greater initiative in seeking intellectual rewards and greater effort, persistence, and success in intellectual-academic tasks than children having a more external orientation (Clifford & Cleary, 1972; Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, & York, 1966; McGhee & Crandall, 1968; Messer, 1972; Shaw & Uhl, 1971; Weiner, 1974; Chance, Note 1). However, frequently reported inconsistencies and failures to uncover an unambiguous relationship between locus of control and intellectual-achievement measures would suggest that the association may be a complex one (Katz, 1967; Lefcourt, 1976; Phares, 1976; Nowicki, Note 2). For example, the direction and strength of the association has often been found to be mediated by the sex of the child, with internality more frequently associated with intellectual-achievement behaviors in males than females (Brown & Strickland, 1972; Crandall,

Katkovsky, & Preston, 1962; Phares, 1976; Cellura, Note 3).

While several locus of control scales for children have emerged (Battle & Rotter, 1963; Bialer, 1961; Mischel, Zeiss, & Zeiss, 1974; Nowicki & Strickland, 1973), the Intellectual Achievement Responsibility (IAR) Questionnaire (Crandall, Katkovsky, & Crandall, 1965) would appear to be best suited to explore the relationship between the child's attributions and school-related performance measures. The IAR attempts to assess the child's belief in reinforcement responsibility exclusively in intellectual-academic achievement situations. Moreover, separate scales allow for the assessment of the extent to which the child assumes responsibility for successful (I+) and unsuccessful (I-) outcomes in addition to an overall measure of internality (Total I). Recent investigations conducted with the IAR Questionnaire (DuCette, Wolk, & Soucar, 1972; Wolk & Eliot, 1974) have been particularly enlightening in that they indicate that the pattern of relationship between a child's assumption of responsibility for successes and failures, in addition to a global indicant of the extent of internality, may be associated with particular adaptive or maladaptive behaviors. In addition, these studies suggest that the inconsistencies frequently reported in investigations of locus of control and intellectual-achievement measures may be partially due to the misconception that the relationship is necessarily a linear one; the correlational analyses typically employed to explore the relationship may thus serve to obscure more subtle differences and patterns. The present investigation was primarily designed to compare the I+/I- patterns and intellectual-achievement performance scores of boys and girls at different levels of Total I.

While attributions concerning the self and other have been studied in the adult person perception literature (e.g., Jones & Nisbett, 1971), little is known of the extent to which an individual's evaluation of his or her own control of reinforcement is congruent with that individual's evaluation of the locus of control in others. The present investigation, employing an expanded version of the Crandall et al. (1965) IAR Questionnaire, attempted to examine the relationship between children's attributions of responsibility for their own and another individual's intellectual-academic successes and failures. While developmental differences in attribution congruency were of some interest, the Self/Other subscale was developed primarily to determine whether children differing in Total I level also differ in their perception of another's responsibility for successful and unsuccessful outcomes. Specifically, it was predicted that children who assume relatively little responsibility for intellectual-academic outcomes might do so partially for defensive reasons (Davis & Davis, 1972; Phares, Wilson, & Klyver, 1971) and support such a stance by judging others to be more responsible than themselves for unsuccessful outcomes. No predictions were proffered, however, concerning the Self/Other attributions of children who assume relatively greater responsibility for their performance outcomes.

Method

Subjects. A total of 138 children from two public schools in a small Midwestern town took part in the study. The subjects were 21 boys and 26 girls from the fourth grade, 21 boys and 26 girls from the sixth grade, and 22 boys and 22 girls from the eighth grade. The mean ages of the fourth, sixth, and eighth graders were 10.4, 12.2, and 13.9 years,

respectively. The sample was heterogeneous with regard to social class and race, but predominately middle-class and Caucasian. All of the children who served as subjects had written permission from their parents to participate in the study.

Attribution Measure. An expanded version of the Crandall, Katkovsky, and Crandall (1965) Intellectual Achievement Responsibility (IAR) Questionnaire was used in the present study.[1] The original IAR Questionnaire consists of 34 forced-choice items half of which assess the child's assumption of personal responsibility for intellectual-academic successes (I+) and half of which assess the child's perceptions concerning intellectual-academic failures (I-). Each item poses one internal and one external alternative. For example, one "success" item asks,

If a teacher passes you to the next grade, would it probably be

a. because she liked you, or

(I+) b. because of the work you did?

One "failure" item asks,

When you have trouble understanding something in school, is it usually

a. because the teacher didn't explain it clearly, or

(I-) b. because you didn't listen carefully?

Separate scores for internality of responsibility for successes (I+) and failures (I-) are thus obtained from the items dealing with positive and negative outcomes, respectively. The I+ and I- scores can be summed to give a general index (Total I) of the extent to which the child assumes responsibility for intellectual-academic outcomes.

An expanded version of the IAR Questionnaire was constructed so that the children's attributions of other individual's successes and failures, as well as attributions about themselves, could be measured. Nine I+ and

nine I- items from the original IAR Questionnaire, labeled the "Selected Self" subscale, were rewritten by simply substituting the words "someone else in your class" or "that person" for "you." For example, the above I+ item was changed to,

> If a teacher passes someone else in your class to the next grade, would it probably be
>
> a. because she liked that person, or
>
> (I+) b. because of the work that person did?

The 18 rewritten items, forming the "Selected Other" subscale, were inserted randomly into the original IAR scale with the stipulation that Self/Other item pairs be at least 10 questions apart. The Selected Self and Selected Other subscales yielded I+, I-, and Total I scores similar to the original IAR Questionnaire. The final expanded IAR Questionnaire consisted of 52 questions.[2]

Intellectual-Achievement Performance Measures. Previous semester report card grade averages, intelligence test scores, and achievement test percentile scores were used as the indices of intellectual-achievement performance. The data were obtained from the students' permanent files. Report card grade averages were computed for each student for all grades given in academic subjects during the previous term. The letter grades were converted to numerical form by considering A+ = 12, A = 11, A- = 10, . . . F = 0.

IQ scores for each child in the fourth and eighth grades were from the Otis-Lennon Mental Ability Test; for the sixth graders the IQ scores were from the Kuhlman-Finch Scholastic Aptitude Test. Mean achievement percentile scores for the fourth and sixth graders were derived from the reading, language, and arithmetic subtests of the Metropolitan Achievement Test; for

the eighth graders the composite achievement percentile scores were based on the reading, language arts, and arithmetic subtests of the SRA Achievement Series (Multilevel Edition).

Procedure. The expanded IAR Questionnaire was administered to groups of students in their own classrooms during regular class periods. Because previous research with the IAR (Crandall, et al., 1965) has indicated that some children have difficulty in reading the questionnaire when tested exclusively with the written form, both an oral (via videotape) and a written administration were used concurrently. Each child was given a copy of the expanded IAR Questionnaire and was asked to read along with the individual on the videotape. The students were instructed to choose one response to each question by circling either answer "a" or "b." The students were told that they were to answer every question on their own and that there were no correct or incorrect answers. The children were encouraged to raise their hand if they encountered any difficulty in understanding the questions or in keeping up with the videotape. The oral-written administration procedure proved very successful and every participant completed the questionnaire.

Results

Analysis of Scores on the Original 34-Item IAR Questionnaire. Table 1 presents the means and ranges of the boys' and girls' IAR total scores and subscores for each of the grades tested. Repeated measures analysis of variance with unequal N comparing the children's mean scores on I+ and I-

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Insert Table 1 about here

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indicated that both the girls and boys assumed more responsibility for intellectual-academic successes than failures, F (1,71) = 5.45, $p < .025$, and F (1,61) = 16.63, $p < .001$, respectively. Three (Grade Level) X 2 (Sex) analyses of variance with unequal N were performed separately on the Total I, I+, and I- scores. While no significant sex differences were revealed on either the Total I or I+ scales, the girls were found to take more responsibility for failures in intellectual-academic achievement situations (I-) than the boys, F (1,132) = 4.10, $p < .05$.

Partitioning of Total I Scores into Lo, Mid, and Hi Levels. Table 2 presents a description of the groups determined by partitioning the children's IAR scores into Lo, Mid, and Hi Total I levels. The groups were

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Insert Table 2 about here

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established by rank ordering the scores on Total I for the boys and girls in each grade level and determining the lowest (Lo), highest (Hi), and middle (Mid) thirds on this measure. Minor deviations from equivalent group size occasionally occurred in each grade level as the result of assigning children with the identical borderline Total I scores to the same group. However, since the range and distribution of Total I scores differed slightly across the 4th, 6th, and 8th grade levels some overlap in the ranges of Lo, Mid, and Hi groups was unavoidable when the grade levels were combined.

Relationship Between I+ and I- Scores for Lo, Mid, and Hi Total I Groups. While both the boys and the girls were found to attribute more responsibility to themselves for intellectual-academic successes than failures (see Table 1) it was of interest to examine the relationship between I+ and I- scores for

children at the three levels of Total I. The boys' and the girls' scores were assessed separately with 3 (Grade Level) X 3 (Total I Level) X 2 (I+/I-) analyses of variance with I+/I- as a repeated measure. No interactions involving grade level were found; Table 3 presents the mean I+ and I- scores for the boys and girls at Lo, Mid, and Hi levels of Total I. While the I+/I- main effect was again found for both the boys and the girls, a Total I Level

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Insert Table 3 about here

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by I+/I- interaction was found only for the boys, F (2,55) = 7.19, $p < .005$. A simple effects analysis of the interaction revealed that only in the Lo Total I group did the boys attribute more responsibility to themselves for intellectual-academic successes than failures, F (1,21) = 25.40, $p < .001$; no significant differences were found between the I+ and I- scores for boys in the Mid or Hi Total I groups, F (1,21) = .74 and F (1,19) = 1.83, respectively, both ns.

Relationship Between Total I Levels and Scores on the Intellectual-Achievement Performance Measures. The boys' and the girls' scores on each of the intellectual-achievement performance measures were examined separately with 3 (Grade Level) X 3 (Total I Level) analyses of variance. Again, no significant interactions of grade level and Total I Level were found. Figure 1 presents the mean report card grade averages, achievement test percentile scores, and IQ scores for the Lo, Mid, and Hi Total I groups. An effect of Total I Level

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Insert Figure 1 about here

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was found for the boys on report card grade averages [F (2,55) = 5.80, $p < .01$], achievement test percentile scores [F (2,55) = 3.38, $p < .05$], and IQ [F (2,55) = 3.89, $p < .05$]. Planned orthogonal contrasts revealed that for each of these main effects, the Lo Total I group differed significantly from the Mid and Hi Total I groups while the latter two groups did not differ. Specifically, the Lo Total I group had significantly lower report card grade averages [F (1,55) = 11.45, $p < .005$], lower achievement test percentile scores [F (1,55) = 5.43, $p < .025$], and lower IQ scores [F (1,55) = 7.28, $p < .01$] than boys in the Mid and Hi levels of Total I.

With regards to the girls, no significant differences were found on any of the intellectual-achievement performance measures as a function of Total I Level.

Relationship Between Selected Self and Selected Other IAR Scores. In addition to examining the relationship between the children's assumption of responsibility for successes and failures (Total I) and various intellectual-achievement performance scores, the present investigation also explored the relationship between the children's interpretations of the causes of their own intellectual-academic outcomes (Selected Self subscale) and their attributions of the causes of these outcomes for others (Selected Other subscale).[3]

The correlations presented in Table 4 indicate that the children's judgments of the extent of their responsibility for intellectual-academic successes and failures were consistently associated with their judgments of the extent of another's responsibility for intellectual-academic outcomes. No clear developmental trends were found in the Self/Other judgments. However, the

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Insert Table 4 about here

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fourth grade boys were found to be less consistent in their attributions of Self and Other responsibility for failure than their older counterparts ($p < .05$).

Although the Self/Other correlations were generally high, it was of particular interest to explore differences in the children's perceptions of the source of intellectual-academic successes and failures in themselves and in others as a function of the extent to which they assumed responsibility for favorable and unfavorable outcomes (Total I).

The boys' and the girls' scores on each of the Selected Self and Selected Other subscale measures (i.e., Total I, I+, I-) were assessed with 3 (Total I Level) X 3 (Grade Level) X 2 (Self/Other) analyses of variance with Self/Other as a repeated measure. Grade level was not found to mediate the relationship between Total I Level and any Self/Other I measure for either the boys or the girls. Table 5 presents the Self and Other Total I, I+, and I- scores for the Lo, Mid, and Hi Total I groups. The boys' Self Total I scores were

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Insert Table 5 about here

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found to be significantly lower than their Other Total I scores, F (1,55) = 5.07, $p < .05$. While the interaction with Total I Level failed to reach significance, inspection of the means suggests that this effect was predominately due to the tendency for boys in the Lo Total I group to rate another as more responsible for intellectual-academic outcomes than themselves. A similar pattern was reflected in the finding of a significant interaction of Self/Other I- with Total I Level, F (2,55) = 6.79, $p < .005$. A simple effects analysis of the interaction revealed that only in the Lo Total I group did boys rate themselves as less responsible

for their own intellectual-academic failures than they rated others for their negative outcomes, F (1,21) = 10.32, $p < .005$; no differences were found for boys in the Mid Total I group [F (1,21) = .10, ns] or Hi Total I group, F (1,19) = 1.65, ns. Moreover, no significant differences were found in the boys' attributions of the source of their own and another's intellectual-academic successes.

A contrasting pattern of Self/Other judgments emerged for the girls. A significant interaction of Self/Other Total I and Total I Level was found for the girls, F (2,65) = 6.49, $p < .005$. A simple effects analysis of the interaction revealed that while the Lo and Mid Total I groups did not differ in their Self/Other Total I attributions (both F's < 1), the Hi Total I group rated themselves as more responsible for intellectual-academic outcomes than another classmate, F (1,21) = 17.67, $p < .001$. This finding was paralleled by a significant Self/Other I- and Total I Level interaction, F (2,65) = 3.49, $p < .05$. A simple effects analysis of this interaction again revealed that the Self/Other I- judgments did not differ significantly for either the Lo or Mid Total I groups (both F's < 1). However, the girls in the Hi Total I group, while undifferentiated from the other girls on measures of intellectual-achievement performance, were found to attribute more responsibility to themselves than another individual for intellectual-academic failures, F (1,21) = 12.81, $p < .005$. While girls in the Hi Total I group also tended to attribute more responsibility to themselves than another for successful outcomes, no significant Self/Other I+ main effect or interaction with Total I Level was found.

Discussion

While no consistent developmental differences were found, the relationship between the student's attribution of responsibility for intellectual-academic successes and failures and various intellectual-achievement indices was found to be mediated by the sex of the child and by the I+/I- level and pattern. The boys who assumed little responsibility for intellectual-academic outcomes (Lo Total I) demonstrated a different pattern of I+/I- scores, poorer scores on the intelligence and achievement measures, and a different pattern of Self/Other perceived locus of control judgments than boys who assumed relatively greater responsibility for their own outcomes.

While the boys and girls generally tended to assume greater personal responsibility for intellectual-academic successes than failures, only boys in the Lo Total I group demonstrated an extreme pattern of I+/I- imbalance reminiscent of a group of low IQ "problem" students in a prior investigation (DuCette, Wolk, & Soucar, 1972). The boys in the Lo Total I group were also found to have significantly lower report card grade averages, achievement test composite percentile scores, and intelligence test scores than boys in the Mid and Hi Total I groups, who demonstrated a more balanced I+/I- pattern. No differences were found, however, between the boys in the latter two groups on any of the intellectual-achievement performance measures.

A high level of congruency was generally found between the children's attributions of responsibility for their own and another individual's intellectual-academic outcomes. However, the partitioning into Total I levels revealed that boys in the Lo Total I group evaluated themselves as less responsible than others for unsuccessful outcomes (I-). This finding

supports the results of previous investigations (Nicholls, 1975; Snyder, Stephan, & Rosenfield, 1976) which indicate that males encountering unpleasant evaluations frequently generate defensive or "egotistic" attributions which serve to place them in a more favorable evaluative light.

The girls who participated in this study were not found to differ significantly on any measure of intellectual- achievement performance as a function of Total I level. Unexpectedly, the Self/Other comparisons indicated that the girls who assumed the greatest responsibility for their own outcomes (Hi Total I) rated themselves as more responsible than others for intellectual-academic outcomes, particularly failures. While this pattern was in direct contrast to the self-serving attributions of boys in the Lo Total I group, it was not found to be associated with any distinctive level of intellectual-achievement performance.

The pattern of sex differences found in this investigation offers some support for the notion that the perceived responsibility for intellectual-academic outcomes may be more associated with school-related performance measures in males than females (Brown & Strickland, 1972; Crandall, et al., 1962; Phares, 1976; Cellura, Note 3). Moreover, the pattern of extreme I+/I- imbalance found exclusively for the boys in the Lo Total I group would suggest that, for males at least, the extent to which a child assumes responsibility for intellectual-academic failures relative to successes may be particularly important in achievement situations. Other investigators (McGhee & Crandall, 1968; Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1971) have also emphasized that an individual's perception of personal responsibility for intellectual-academic failures may provide stronger motivation for persistence on academic tasks and subsequent improvement in performance than the attribution of personal responsibility for successes. For example, Dweck

(1975) has reported important gains in the school performance of children classified as suffering from "learned helplessness" by employing an attribution training procedure which encourages the child to take responsibility for and respond with heightened effort to unpleasant academic outcomes. The adage that "while anyone can be a good winner, one has to learn how to be a good loser" apparently takes on special meaning in the academic sphere.

The findings derived from the Self/Other subscale of the expanded version of the Crandall et al. (1965) IAR Questionnaire suggest some possible areas for future study. While the fourth grade boys were found to be less congruent in their attribution of their own and another's responsibility for intellectual-academic failures than the sixth and eighth grade boys, the children at all three grade levels were generally quite consistent in their Self/Other judgments. Subsequent studies, involving somewhat younger children, might help to determine whether the congruency in perceived locus of control for successful outcomes develops concurrently with, or on a different schedule than, the perception of responsibility for one's own and another's unsuccessful intellectual-academic outcomes. Another variant of Self/Other attributions which might be examined concerns the extent to which students' perceptions of the locus of control of their own successful and unsuccessful outcomes are congruent with those of teachers. Just as expectations of the student's future performance serve to influence the teacher-student interaction and subsequent academic achievement (Brophy & Good, 1974; Rosenthal & Jacobson, 1968), so might attribution incongruency play an important role in the establishment and maintenance of school-related difficulties. For example, a student who attributes his or her poor performance to a lack of effort or to some external cause is unlikely to be optimally guided or motivated by a teacher who is unaware of the student's

perception and attributes the poor performance predominately to low ability. Whether, and to what extent, teacher-student (mis)attributions influence the child's academic performance appears to be an important area for future investigation.

Reference Notes

1. Chance, J.E. Internal control of reinforcements and the school learning process. Paper presented at the biennial meeting of The Society for Research in Child Development, Minneapolis, March 1965.

2. Nowicki, S. Predicting academic achievement of females from locus of control orientation: Some problems and some solutions. Paper presented at the meeting of the American Psychological Association, Montreal, September 1973.

3. Cellura, A.R. Internality as a determinant of academic achievement in low SES adolescents. Unpublished manuscript, University of Rochester, 1963.

References

Battle, E., & Rotter, J. B. Children's feelings of personal control as related to social class and ethnic groups. Journal of Personality, 1963, 31, 482-490.

Bialer, I. Conceptualization of success and failure in mentally retarded and normal children. Journal of Personality, 1961, 29, 303-320.

Brophy, J. E., & Good, T. L. Teacher-student relationships: Causes and consequences. New York: Holt, Rinehart and Winston, Inc., 1974.

Brown, J. C., & Strickland, B. R. Belief in internal-external control of reinforcement and participation in college activities. Journal of Consulting and Clinical Psychology, 1972, 38, 148.

Clifford, M. M., & Clear, T. A. The relationship between children's academic performance and achievement accountability. Child Development, 1972, 43, 647-655.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., & York, R. L. Equality of educational opportunity. Superintendant of Documents Catalog No. FS 5.238: 38001. Washington, D.C.: U.S. Government Printing Office, 1966.

Crandall, V. C., Katkovsky, W., & Crandall, V. J. Children's belief in their own control of reinforcement in intellectual-academic situations. Child Development, 1965, 36, 91-109.

Crandall, V. J., Katkovsky, W., & Preston, A. Motivational and ability determinants of young children's intellectual achievement behaviors. Child Development, 1962, 33, 643-661.

Davis, W. L., & Davis, D. E. Internal-external control and attribution of responsibility for success and failure. Journal of Personality, 1972, 35, 547-561.

DuCette, J., Wolk, S., & Soucar, E. Atypical patterns in locus of control and nonadaptive behavior. Journal of Personality, 1972, 40, 287-297.

Dweck, C. S. The role of expectations and attributions in the alleviation of learned helplessness. Journal of Personality and Social Psychology, 1975, 31, 674-685.

Jones, E. E., & Nisbett, R. E. The actor and the observer: Divergent perceptions of the causes of behavior. Morristown, N. J.: General Learning Press, 1971.

Katz, I. The socialization of academic motivation in minority group children. In D. Levine (Ed.), Nebraska symposium on motivation. Lincoln, Neb.: University of Nebraska Press, 1967.

Lefcourt, H. M. Locus of control: Current trends in theory and research. Hillside, N. J.: Lawrence Erlebaum Associates, 1976.

McGhee, P. E., & Crandall, V. C. Beliefs in internal-external control of reinforcement and academic performance. Child Development, 1968, 39, 91-102.

Messer, S. B. The relation of internal-external control to academic performance. Child Development, 1972, 43, 1456-1462.

Mischel, W., Zeiss, R., & Zeiss, A. Internal-external control and persistence: Validation and implications of the Stanford Preschool Internal-External Scale. Journal of Personality and Social Psychology, 1974, 29, 265-278.

Nicholls, J. G. Causal attributions and other achievement-related cognitions: Effects of task outcome, attainment value, and sex. Journal of Personality and Social Psychology, 1975, 31, 379-389.

Nowicki, S., & Strickland, B. R. A locus of control scale for children. Journal of Consulting and Clinical Psychology, 1973, 40, 148-154.

Phares, E. J. Locus of control in personality. Morristown, N. J.: General Learning Press, 1976.

Rosenthal, R., & Jacobson, L. Pygmalion in the classroom: Teacher expectation and pupils' intellectual development. New York: Holt, Rinehart, and Winston, 1968.

Shaw, R. L., & Uhl, N. P. Control of reinforcement and academic achievement. Journal of Educational Research, 1971, 64, 226-228.

Snyder, M. L., Stephan, W. G., & Rosenfield, D. Egotism and attribution. Journal of Personality and Social Psychology, 1976, 33, 405-408.

Weiner, B. Achievement motivation and attribution theory. Morristown, N. J.: General Learning Press, 1974.

Weiner, B., Frieze, I., Kukla, A., Reed, L., Rest, S., & Rosenbaum, R. Perceiving the causes of success and failure. Morristown, N. J.: General Learning Press, 1971.

Wolk, S., & Eliot, J. Information-generated influence as a function of locus-of-control patterns in children. Child Development, 1974, 45, 928-934.

Footnotes

[1]Reliability and validity data for the original IAR scale are reported in Crandall et al. (1965) and McGhee and Crandall (1968)

[2]A copy of the expanded IAR Questionnaire is available from the first author by request.

[3]It was desirable that the Selected Self subscale be a representative sample of the items on the original IAR Questionnaire. Therefore, prior to examining the relationship between the Selected Self and Selected Other IAR scores, the children's Total I scores on the 18 Selected Self items were compared with their Total I scores on the 34 items of the original IAR. Correlations computed separately for the boys and girls at each grade level ranged from .76 to .94. The correlation between the Selected Self Total I scores and the original IAR Total I scores for the entire sample was .87 (all p's < .01).

Table 1

Means and Ranges of Total I, I+, I- Scores

by Grade Level and Sex

Grade Level		N	Total I		I+		I-	
			Mean	Range	Mean	Range	Mean	Range
4th								
	Boys	21	25.05	18-31	13.24	10-16	11.81	7-15
	Girls	26	25.97	18-31	13.62	7-16	12.35	8-15
	Total	47	25.50	18-31	13.36	7-16	12.08	7-15
6th								
	Boys	21	25.33	11-32	13.62	6-17	11.71	5-16
	Girls	26	25.77	16-30	13.35	9-16	12.42	6-15
	Total	47	25.55	11-36	13.48	6-17	12.07	5-16
8th								
	Boys	22	22.60	13-31	11.64	9-15	10.96	4-16
	Girls	22	25.14	16-31	12.68	4-16	12.46	5-16
	Total	44	23.86	13-31	12.16	4-16	11.71	4-16

Table 2

Total I Scores Partitioned into Lo, Mid,

and Hi Levels: Description of Groups

Group	Grade Level	N	Mean	Range
Boys - Lo Total I				
	4th	8	21.88	18-24
	6th	7	19.29	11-21
	8th	7	19.71	13-21
	Total	22	19.73	11-24
Boys - Mid Total I				
	4th	6	25.50	25-26
	6th	7	26.43	25-27
	8th	9	22.89	22-24
	Total	22	24.73	22-27
Boys - Hi Total I				
	4th	7	28.29	27-31
	6th	7	30.29	28-32
	8th	6	27.83	26-31
	Total	20	28.85	26-32
Girls - Lo Total I				
	4th	8	22.75	18-25
	6th	9	21.44	16-23
	8th	7	20.14	16-24
	Total	24	21.50	16-25

Group	Grade Level	N	Mean	Range
Girls - Mid Total I				
	4th	11	26.45	26-27
	6th	9	26.67	24-28
	8th	8	26.13	25-27
	Total	28	26.43	24-28
Girls - Hi Total I				
	4th	7	28.86	28-31
	6th	8	29.63	29-30
	8th	7	29.00	28-31
	Total	22	29.18	28-31

Table 3

Mean I+ and I- Scores for Boys and Girls at Lo, Mid, and Hi Total I Levels

Sex	Total I Level	IAR Subscale	
		I+	I-
Boys			
	Lo	11.17	8.33
	Mid	12.77	12.17
	Hi	14.65	14.15
	Total	12.86	11.55
Girls			
	Lo	10.80	10.64
	Mid	13.81	12.60
	Hi	15.06	14.10
	Total	13.23	12.45

Table 4

Correlations Between Selected Self and

Other Total I, I+, and I- Scores

Grade Level	Sex	Selected Self and Other Scale Items		
		Total I	I+	I-
4th				
	Boys	.50*	.50*	.25
	Girls	.69**	.50**	.48*
	Total	.54**	.48**	.35*
6th				
	Boys	.76**	.33	.72**
	Girls	.65**	.67**	.62**
	Total	.71**	.50**	.68**
8th				
	Boys	.78**	.52*	.72**
	Girls	.73**	.57**	.48*
	Total	.75**	.54**	.61**

Note. ** $p < .01$

* $p < .05$

Table 5

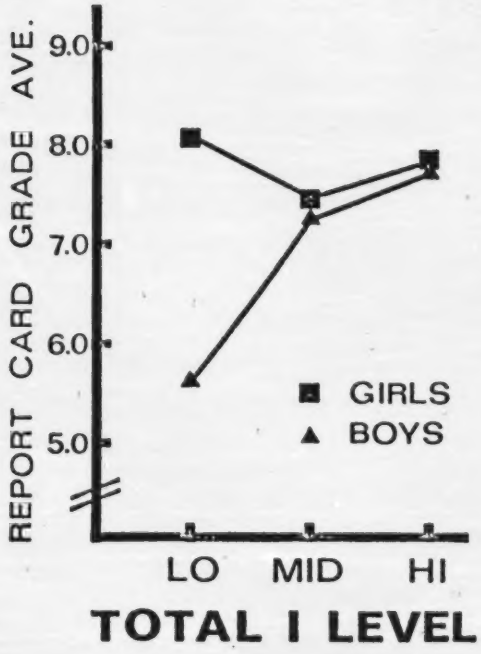
Mean Selected Self/Other Total I, I+, and I- Scores

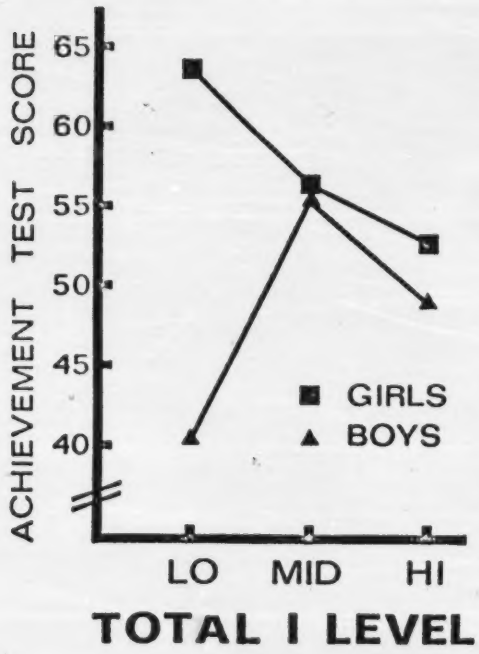
for Lo, Mid, and Hi Total I Groups

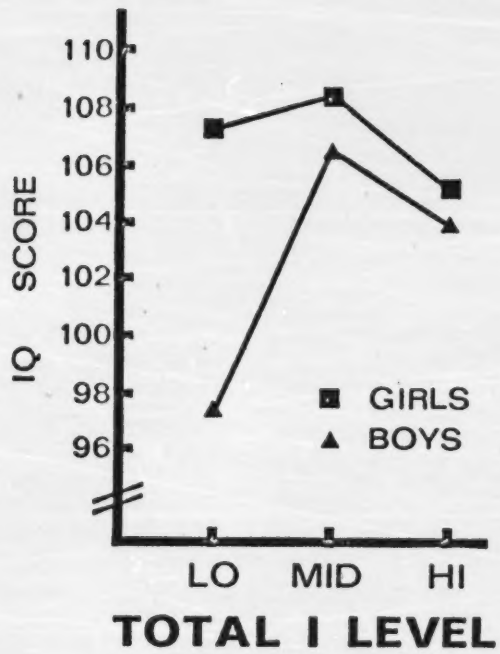
Total I Group	Self Total I	Other Total I	Self I+	Other I+	Self I-	Other I-
Boys						
Lo	11.07	12.30	5.80	5.99	5.27	6.31
Mid	14.72	14.97	7.23	7.60	7.49	7.37
Hi	15.94	16.14	7.85	8.24	8.09	7.90
Total	13.91	14.49	6.96	7.28	6.95	7.19
Girls						
Lo	12.30	12.83	5.93	6.14	6.37	6.69
Mid	15.26	15.17	7.66	7.59	7.60	7.58
Hi	16.55	15.28	8.30	7.71	8.25	7.57
Total	14.70	14.43	7.30	7.15	7.41	7.28

Figure Caption

Figure 1. Mean Report Card Grade Averages, Achievement Test Percentile Scores, and IQ Scores for Lo, Mid, and Hi Total I Groups.


REPORT CARD GRADE AVE.
9.0
8.0
7.0
6.0
5.0
GIRLS
BOYS
LO
MID
HI
TOTAL I LEVEL


ACHIEVEMENT TEST SCORE
65
60
55
50
45
40
GIRLS
BOYS
LO
MID
HI
TOTAL I LEVEL


IQ SCORE
110
108
106
104
102
100
98
96
GIRLS
BOYS
LO
MID
HI
TOTAL I LEVEL